ECOLODGE DEVELOPMENT GUIDELINES FOR NYUNGWE FOREST NATIONAL PARK, RWANDA

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A document prepared for ORTPN and Potential Investors to guide the ecolodge development in Nyungwe Forest National Park

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1.1 Definition, and features

The term “Ecolodge” is a tourism industry label used to identify a nature-dependent tourist facility that meets the principles of ecotourism (Hawkins et. al., 1995). Such a facility is developed and managed in an environmentally sensitive manner in order to protect its operating environment. Critical issues would include the nearby natural and cultural attractions, the way in which an ecolodge is operated and marketed, and the way in which local people are involved in the process of developing ecolodges (Ceballos-Lascurain, 2001).

To achieve this, an ecolodge should be designed as a small-scale facility that blends in with its surroundings, offering visitors an environmental experience of the natural world around them (Mehta, 2000). Any ecolodge project requires the adoption of a different approach to architecture, commonly termed “ecological design” or “Eco-design”. Lubbe (2003) defines an ecodesign as the development of buildings and landscapes in such a way that they (i) integrate themselves into the landscape and all its features, (ii) enhances the usefulness of natural environment, and (iii) takes into consideration all the components and aspects of the ecosystem. To qualify as an ecolodge therefore, the facility is required to be constructed using natural and locally produced building materials. It ideally should rely on solar or alternative energies, recycles the waste and wastewater it generates, serves locally grown and produced foods, and usually donates part of its profit to local conservation and development efforts.

Photo by Hitesh Mehta

1.2 Ecolodges development

As ecotourism continues to establish itself in the global economy, the demand for well-planned, environmentally sound lodging facilities is enormously increasing, which has competitively positioned ecoldoges in the market. The reason for this is that ecolodges have enabled the visitors to interact with the natural and cultural surroundings worldwide and prioritised conservation (Mehta, 2000). As ecolodges have continued to evolve, many developers and investors all over the world especially in the tourism industry have opted to abandon conventional designs and facilities to ecolodge designs because of their profitability, less sophistication, and minimum negative impacts involved in their development as well as their positive impact to rural and bio diverse areas (International Finance Corporation, 2004, Cebalos-Lascurain, 2001). From the study carried out by the World Bank, the ecolodge market is expected to grow by an average rate of 10% per year over several decades (International Finance Corporation, 2004).

This potential however, may be adversely affected by negative development patterns and practices. Some of such practices include ; inadequate government regulations to ensure appropriate development, poor monitoring of impacts on communities and environment, lack of expertise to maintain ecolodge development standards, and many more, which all in the end have potential to destroy a destination for ecotourism like Rwanda and NFNP in particular(International Finance Corporation, 2004).

Despite such constraints, ecolodges have broad market opportunities over the next few years as highlighted earlier to capitalise on the developing ecotourism in mostly African destinations (International Finance Corporation, 2004). However, those to benefit most from such market will the ones that have been able to maintain the required standards. Some of the standards recognised internationally for ecolodges and as many authors have suggested they include (Mehta, 2000; Ceballos-Lascurain, 2001; Lubbe, 2003; Hawkins et al, 1995; Eagles et al, 2002):

- Ecolodges should pay attention to the natural setting and respect vernacular architecture during designing and site planning
- Ecolodges should meet energy needs through passive design and renewable energy sources
- Ecolodges should use environmental sensitive materials during development and maintenance.
- Ecolodges should manage waste sustainably
- Ecolodges should involve and empower local communities during planning, development and operation stages.

Photo by Hitesh Mehta

In Rwanda therefore, developers for ecolodges must ensure that they fit into their specific physical context through careful attention to form, landscaping, and colour, as well as the use of vernacular architecture. Throughout the ecolodge development, the internationally recognized standards some of which are highlighted above should be followed and maintained.

Given the continued demand for ecotourism in Rwanda and particularly in NFNP, the development of ecolodges is inevitable, and for this reason, this document has been produced to guide the NFNP management and potential investors to develop appropriate tourist accommodation facilities that are environmentally and socially friendly.

2.0 Rationale for Eco-lodge development in NFNP

Rwanda has since the civil war and genocide recognized the importance of tourism sector to its economy and therefore began a process of developing it. As a result, a national tourism strategy was elaborated to guide tourism development in the whole country. This strategy identified NFNP as a core component which aims at satisfying one of the county's major market segments of eco-travellers and explorers (OntheFrontier, 2003). Consequently, ORTPN has embarked on developing tourism in NFNP according to the recommendations of the national tourism strategy. Various projects including the ecotourism development plan and a market study among others have been carried out so as to achieve this goal. More recently, tourist numbers has increased and on average NFNP has registered about 200 visitors per months in peak seasons unlike the past years when the average number of visitors per months used to be less than 50 visitors in the same season.

However, there are limited tourist facilities in NFNP to support the current tourism development. Accommodation in this park is quite limited and with the current level of tourist visit, and the increasing trend of visitor numbers, NFNP needs more accommodation facilities. Presently, there exists a guesthouse adjacent to NFNP which was meant for researchers and this is what tourists use temporarily. Coupled with the fact that this is not a tourist facility, this guesthouse is most of the times overwhelmed by the increasing market which may lead to poor services and therefore limit visitors' satisfaction. Therefore there is a need develop appropriate tourist accommodation facilities in NFNP to encourage more visitors while supporting the park management to realise the set tourism development goals.

However, because of the fact that NFNP is one of the richest parks in biodiversity in this region (Plumptre et al, 2002) and for the sake of the environment and the local people, there is need to strategically approach the accommodation development to incorporate sustainable principles. Such principles should be identified in the planning and design of the tourist accommodation facility, which makes an ecolodge type of facility more ideal for NFNP.

3.0 Guidelines for Eco-lodge development in NFNP

3.1 Rationale

As mentioned earlier, ecolodges are usually built in and around natural areas which are rich in biodiversity (Ceballos-Lascurain, 2001). This is the same for NFNP because almost all the proposed ecolodge sites in this park are in or around biodiversity rich areas. The reason for this is that such sites provide a potential to attract visitors. However, establishing such developments in biologically diverse areas can have detrimental ecological and social impacts if not controlled. The aim of this document therefore is to provide a framework for ecolodge development and maintenance in NFNP which help to limit the negative impacts associated with such development.

Discussed in this section, is the mentioned framework in form of guidelines to shape the ecolodge development in NFNP for sustained benefits while upholding the social and ecological integrity of this park and the surrounding environment. The first subjection involves the general guidelines and standards that are required of the ecolodge developers in NFNP. The second subsection however, will show specific guidelines at both stages (planning/implementation and operation/maintenance) of ecolodge development, with details on how such general guidelines will be applied and their level of importance to emphasise standards during ecolodge development in NFNP. The information provided in this section was adapted, and revised from the ecotourism development plan for NFNP and from various authors with expertise in ecolodge development (Mehta, 2000; Ceballos-Lascurain, 2001; Lubbe, 2003; Hawkins et al, 1995; Eagles et al, 2002; WTO, 1998; ORTPN, 2004):

3.2 General Ecolodge guidelines for developers in NFNP

Site planning:
Landscape architects and planners for ecolodges in NFNP, bear a special responsibility to produce design of ecolodges that are friendly to the surrounding environment. Considerable thought therefore needs to be applied to the planning of future ecolodges in NFNP. A new paradigm to site planning for most proposed sites in NFNP is required, which respects the ecosystems of the site and the communities that neighbour the development.

Landscaping*:*
Through carefully designed, minimal landscape plantings, the built structure of the ecolodge should be made to blend in with and appear as an extension of the natural environment. The landscaping should be guided by the patterns of the

existing natural landscape as much as possible, and in doing so, native vegetation (e.g. shrubs and trees) and rocks should be laid out in an informal, natural manner. Indigenous plants should be included since they will be in greater harmony with the existing surroundings, require less maintenance, be well adapted to the local climatic and soil conditions, and in some cases, attract native wildlife species.

Physical Contextuality (aesthetics):
Ecolodges in NFNP should be designed within the physical context of the area in which it is situated. It must be in visual harmony with its natural surroundings and must not violate or intrude upon the physical landscape as a foreign structure. The facility should interact with the natural ecological/geological features, aiming to blend into them as much as possible.

Cultural Contextuality (aesthetics):
Ecolodge development in NFNP should demonstrate the same level of sensitivity to cultural context as it does to physical context. The design of the ecolodge should be congruous with the cultural environment in which it operates, incorporating cultural motifs and traditional styles of vernacular architecture wherever possible. The use of vernacular architectural principles in the design will allow the ecolodge to reflect the local cultural history, and therefore, be visually and culturally sustainable over time.

Energy use and conservation:
In addressing issues of energy use and conservation, the developer should draw from Rwandese vernacular architecture through "passive design" techniques to utilize natural lighting, heating, and cooling for the ecolodge. They should adopt uses of modern renewable technology, such as solar panels, windmills, biogas digesters, etc., through "active design" to meet energy needs for water heating, lighting, appliances, and cooking.

Water conservation:
Special attention should be paid to water management when planning an ecolodge, especially given the water shortage in Rwanda. The ecolodges developers in NFNP should seek alternative, sustainable means of acquiring water for the ecolodge, as well as means of reducing consumption. Examples of these include: rainwater harvesting; modern water-conserving devices such as low water-use toilets, tap-aerators, and use of showerheads among others.

Sustainable Waste management:
The management of waste is a crucial conservation problem in and around protected areas worldwide. This is particularly due to the large presence of wildlife and indigenous flora in the protected areas, which stand to suffer from the adverse effects of the irresponsible handling and disposal of waste. Therefore, the design of an ecolodge in NFNP must carefully address the issue of waste management by applying the hierarchy of the four R’s (reduce, reuse, recycle, and recover). For example, Solid waste should be sorted out and returned back

to the nearest town for recycling, and organic waste from the kitchen can be composted.

Appropriate building technology:
A range of alternative and minimum impact technologies should be used in the design and operation of new or renovated ecolodges which demonstrate sustainability, low environmental impact, energy conservation and energy renewal, as well as cost effectiveness.

Use of environmentally friendly materials:
Building materials should be prioritized by origin when considering their selection. Examples are primary materials found in nature, including wood from sustainable sources, stone, and plant fibres; and secondary materials from recycled products, including some wood, aluminium, plastics etc. Hydrocarbon-based products should be avoided, even those that are recycled. Tertiary materials include man-made and synthetic materials and those made from non-renewable sources. It is recommended that after materials are in place for development, a declaration of their global environmental impact should be made.

Sustainable construction
After selecting sustainable building technologies and materials, the architects and developers must strive to ensure that the construction phase of the ecolodge development has minimal impact on the natural environment. To meet sustainability requirements, the developers must attempt to preserve natural resources on the site and minimize disturbance of the wildlife in the area during construction.

3.3 Specific ecolodge guidelines for NFNP at various development stages.

These guidelines are given a two-level rating of their importance. The rating "high" is given to the essential guidelines, while "medium" means that the guideline is of secondary importance.

3.3.1 Guidelines for planning and implementation stages of ecolodge development

(a) Guidelines to limit the environmental impacts

Guideline 1(high importance):
Most of the proposed ecolodge sites are found in the richest and most unique areas in terms of biodiversity in NFNP. Prior to the development of the ecolodge therefore, a botanical survey of the forest area bordering the ecolodge site should be conducted by a botanist with proven knowledge of the endemic and rare plant species of Nyungwe Forest. In case this survey detects the presence of such rare plant species, the botanist will dictate the precautions that will have to be taken during the development of the ecolodge.

Guideline 2 (high importance)
Where possible, there should be no development of the ecolodge inside the park. The only possible exception should be the building of one "tree-house", in the trees at the edge of the forest. The development of the tree-house should be done in compliance with the conclusions of the botanical survey and in compliance with any protection directive that could be given by ORTPN. If an ecolodge has to be built in the park, sites that may show high resilience levels to development impacts like those areas that are less biodiversity rich or that already disturbed should be selected for development.

Guideline 3 (high importance)
There should be no clearing of the forest during the development of the ecolodge. No indigenous trees and no parts of indigenous trees should be cut inside the park as building materials (timber, poles) or for any other reason.

(b) Guidelines to ensure sustainable waste management

Guideline 4(importance: medium):
As regards the toilets, high standard septic tanks should be built or even more advanced sewage systems should be used, in order to avoid the contamination of the water-table and adjacent streams. The same principle should be used for the treatment of waste-water.

Guideline 5(importance: high):
At the construction or operation stage of the ecolodge, biodegradable supplies should be preferred to artificial non-biodegradable supplies (the same applies to the packing materials of these supplies). Equipment that can be repaired or recycled when becoming out of use should be preferred.

(c) Guidelines to ensure water conservation

Guideline 6 (importance: high):
The setting up of the water system inside the forest (pump, pipes) should be done so as to minimize disturbances and will comply with the recommendations of the botanical survey to limit the degradation of important vegetation.

(d) Guidelines for energy conservation

Guideline 7 (importance: medium):
Instead of overhead electric line installation, buried lines should be used to bring power from the nearby tea factory to the ecolodge.

Guideline 8(importance: medium):
Solar energy should be installed to power the ecolodge during power cuts and/or even to limit the use of hydro electricity especially for lower consumption uses. For installation, the layout of the panels should be done in such a way that it maintains the harmony of the architecture and landscape of the site.

(e) Guidelines for sustainable construction

Guideline 9(importance: medium):
The ecolodge should be built in such a way as to maintain the quality of the view towards the site.

Guideline 10(importance: medium):
Building materials available locally (*i.e*. in the region of Nyungwe) should be preferred, such as stone, bricks, tiles, wood from plantations, etc. Nevertheless, these materials should not be gathered inside the park. Imported materials should only be used when the type or the quality does not exist in the Nyungwe region and when guarantees exist that what is built can be fairly easily maintained / repaired in the future.

Guideline 11(importance: high):
At the building stage, all littering should be avoided and there should be no dumping of refuse from the works in the forest. After the works, the site and the surroundings should be left clean.

Guideline 12: (importance: high)
In order to reduce the amounts of energy needed to heat the buildings and to give an impression of warmth to the guests, sufficient attention should be paid to the insulation of the buildings (walls etc.). In order to reduce the effects of the cold and wet climate in the rainy season and to improve the comfort of the houses, the design of the buildings should pay special attention to factors such as airing, insulation of the floors and walls from humidity, penetration of light and natural heating during the sunny hours of the morning, etc.

3.3.2 Guidelines for the Operation and maintenance stage of Ecolodge development

(a) Guidelines to limit the environmental impacts

Guideline 1(importance: high):
The ecolodge management should take all measures needed to avoid the spreading of fires to the forest from the ecolodge estate especially in the dry season.

Guideline 2(importance: medium):
The ecolodge management should not use artificial means to attract wild animals of the forest in the area of the ecolodge (distribution of fruit or other bait, etc.).

Guideline 3(importance: high):
The ecolodge should never serve meat, fruit or vegetables from the park and should take all precautions to guarantee that the staff employed by the ecolodge is not involved in any illegal activity in the park (poaching, mining, encroachment, etc.). This can be maintained by development of professional ethics, and application of internal regulations.

Guideline 4(importance: medium):
The ecolodge should endeavour to take all precautions to reduce noise production that could originate from performances, activities of maintenance and repairs.

Guideline 5(importance: medium):
The system of night lighting of the ecolodge compound (outside the buildings, alleys, gates) should be designed so as to minimize the attraction of insects and avoid the loss of large numbers of moths for example by use of specific type of bulbs.

Guideline 6(importance: medium):

The ecolodge management should maintain the system of roads and tracks within the ecolodge estate and the access from the tarmac road. It is advised that these tracks be maintained regularly to minimize erosion of their surfaces.

(b) Guidelines for water conservation

Guideline 7(importance: high):
The water catchment of one spring or stream in the forest (which is currently flowing inside the forest) is authorized, provided the amounts are limited to the essential needs of the ecolodge (bathrooms, kitchens, laundry). In doing this, the preoccupation must be to modify as little as possible the rate of flow of the stream concerned inside the forest. As much as possible, this source should not be used for secondary purposes such as the watering of gardens and plantations in the dry season, or the cleaning of cars.

Guideline 8(importance: high):
A system should be set up to collect rainwater from the roofs of the ecolodge buildings. It should be designed to provide the largest capacity of collection and storage that is possible, in order to guarantee a significant stock of water.

(c) Guidelines for energy conservation

Guideline 9(importance: medium):
Given the fact that the water heating for the ecolodge would represent the larger part of the power consumption, a system of solar water heating should be established.

Guideline 10(importance: high):
As regards the use of firewood for the heating of the buildings in the evening (fire-places), all measures should be taken to guarantee that only dried wood is used (properly air-dried). Firewood is recommended because it is a fairly environment-friendly source of energy, as it is a renewable resource.

Guideline 11(importance: high):
All firewood used should come from tree plantations (especially exotic species). Firewood should not be harvested from the national park, not even dead wood. It can be advised that the ecolodge maintains some productive woodlots of planted exotic trees somewhere, in order to cover its own firewood needs.

(d) Guidelines for waste management

Guideline 12(importance: high):
Garbage produced by the ecolodge should be sorted, and four categories of garbage be separated and treated in a specific ways for example: (i) organic waste (transformed into compost); (ii) paper, wood, vegetal fibres, etc. (burned); (iii) stony and earthy materials (where appropriate converted to gravel and used

as ballast or banking up material); (iv) artificial and non-biodegradable / non properly degradable (plastics, metals, composite materials, etc.). The garbage of the fourth category will be removed from the site and buried in appropriately sited pits located at least 2 km away from the boundary of the national park.

Guideline 13(importance: medium):
All littering in the forest will be avoided.

(e) Guidelines to ensure community benefits

Guideline 14(importance: high):
Generally speaking, in all operations required by the running of the ecolodge, a labour-intensive approach should be favoured rather than a “mechanized” approach to provide the local community with job opportunities.

Guideline 15(importance: high):
Whenever it is feasible, the local recruitment (and training when necessary) of staff coming from the districts adjacent to the park should be preferred to the hiring of people from outside the region of Nyungwe.

Guideline 16(importance: medium):
As much as possible, the ecolodge should buy locally from villages neighbouring the park, its supplies especially consumables.

4.0 Proposed Sites Description

During the ecotourism development process, a consultant was hired to identify ecolodge development sites in and outside NFNP. As a result, five different ecolodge sites were selected and below is their brief description.

4.1 GISAKURA Ecolodge Site

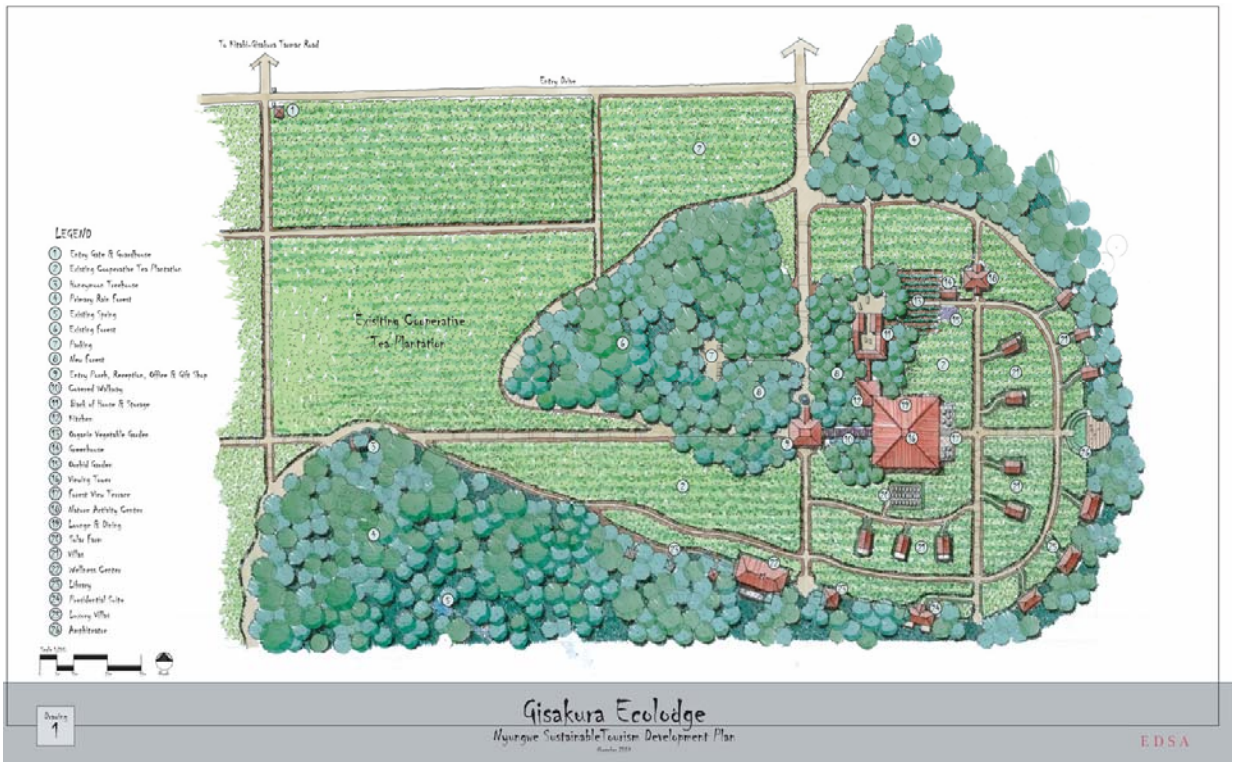
Gisakura Ecolodge is located in the existing tea plantation adjacent to the park. It is one of the most beautiful sites in NFNP with a magnificent view of the tea plantation and the forest. The meeting of two varied landscapes (tea plantation and forest) creates a rich visual experience, and the unique site elevation is a reason it offers magnificent views of Nyungwe Forest. One of the many advantages of this site is that it is located in the western end of the park, which has a strong tourism potential because of its rich biodiversity. Because of the beauty of this site, a luxury ecolodge was recommended in order to attract more of upscale international visitors.

This site is accessed via an existing 3 kms murram road which branches off the asphalted Cyangugu - Butare Road and runs through the tea plantation. It is found at an altitude of 1960 m above sea level and at 2 km away from the neighbouring village. The possible source of water is a bout 200m away from the site while the distance to hydro electricity is 1km.

Possible attractions at Gisakura site: Currently, there are two attractions at this site including the nature walkway (trail) and the waterfalls. Besides this, Gisakura site is closer (20kms distance) to Uwinka where we have most of tourism activities/attractions. However, there is potential to develop more attractions given the fact that this part of the forest is reach in biodiversity. There is potential to develop bird safaris and primates viewing because of the existence of many fragment forests near the site which birds and primates always rotate around as well as the proximity to the species diverse part of NFNP. Coupled with this, there is a potential to develop more attractions including more trails, developing horse riding in tea plantation and developing community tourism products among other potential products.

Gisakura Ecolodge Site (Photo by Gakwerere Rodgers)

Gisakura Ecolodge Site and Forest View (Photo by Gakwerere Rodgers)



The Proposed Landscape Design of the Gisakura Ecolodge

4.2 CYAMUDONGO Eco-Camp Site

Cyamudongo is a fragment forest that is about one and a half hours away from Nyungwe forest national park. Due its richness in unique wildlife like Chimpanzees, this forest has been annexed to NFNP boost its protection. Because of its size, this forest has been identified as an ideal site for chimpanzee tourism unlike NFNP because of their limited home range in this forest. Tourism is therefore being developed in this park, particularly to offer guaranteed chimpanzee tourism. However, there is need for visitors' accommodation to support this development. A tented eco-camp was suggested as an ideal type of tourist accommodation facility by a consultant during the ecotourism development planning for Nyungwe.

During the consultancy time, this site was identified and is located on a ridge adjacent to Cyamudongo Forest near the Cyamudongo-Bugarama marrum road. It is 13km away from the asphalted Butare-Cyangugu road. At an altitude of 2000 m, this site offers guests with uninterrupted views of Bugarama Plains and Cyamudongo Forest. The nearby village is at a distance of 500m, the source of water is 400m away while hydro electricity can be tapped at shagasha tea factory about 12 km distance away from the site.

The advantage of this location is its proximity to habituated group of chimpanzees because visitors can be in the forest from the camp in only 15 minutes to track chimpanzees unlike in NFNP where visitors have to track for hours.

It is proposed that this camp be made into a world class, upscale, low-impact accommodation facility that is not only environmentally and socially sensitive, but also provides a quality to visitors. The consultancy particularly recommended that the conceptual plan should be characterized by the following elements:

- Design a facility where there is a distinct separation between the 'served' and the 'service' areas. Guest sleeping, eating and bathing areas which are separated from the back-of house.
- Develop a tented camp experience which has two sleeping clusters, each on either side of the ridge.
- Design an entry gazebo in the vernacular style, which makes a strong entry statement
- Develop comfortable sleeping and toilet facilities

Possible attractions: Chimpanzees, Hot spring, Bird watching, nature walks, cultural tourism, and a cave with cultural myth to it.

Cyamudongo Eco-camp site (Photo by Gakwerere Rodgers)

Cyamudongo Forest View from the site (Photo by Gakwerere Rodgers)

4.3 Kitabi complex

Kitabi complex is located near the eastern park entrance, and very close to the main asphalted road from Butare to Cyangugu. Its altitude ranges from 2377m to 2428m high, and boasts of beautiful forest view on mount Ngabwe, a magnificent view of the tea plantations over gentle hills, joining the forest. The advantage to this site is that it has already constructed structures though they require major repairs to be ready for use. The possible source of water for this site is about 200m away while electricity can be obtained from the tea factory at a 2kms distance.

The ecotourism development plan recommended a number of projects for this complex including a tourism anchor zone mainly for domestic tourists and foreign residents. It recommended that a Self-help Family Bungalows catering to the market demands of local citizens and expatriates should be developed. The existing small group of 15 brick wall and clay roof tile houses isolated from the main complex and at distance from the main road should be renovated as self-catering for families and small groups. A reception building will need to be added and two of the existing houses can be turned into a lounge and dining area. From the reception building, trails will lead guests through the tea plantation and eucalyptus buffer zone into the forest.

Possible attractions: Blue monkeys visits, nature trails on mount Ngabwe, bird watching, Tea factory visits, and Cultural tourism attractions.

Kitabi Site for Self-Help Family Bungalows (Photo by Munanura Ian)

Planned Tourist Reception and Interpretation Center for NFNP

Forest view from the Reception center.

(Photos by Munanura Ian)

4.4 Gisovu site

In the northern part of the park, Gisovu was identified as a potential site for tourism and therefore suggested as one of the sites to establish a tourist accommodation facility. This site was selected because of the existence of many primate species and its proximity to Kibuye guest house a destination for most Lake Kivu tourists. The tourism plan for NFNP recommended the development of self-help family mountain log cabins especially for local and foreign residents. However a tourist camp with basic restaurant and accommodation facilities would as well be appropriate. The accommodation facilities in form of charlets should be located near and adjacent to the reception and restaurant at a lower elevation in the pines (buffer zone) overlooking the valley, the forest and mt Muzimu. The plan further recommended that all buildings should be predominantly built with wood and therefore a concept of cabins. Again, other types of accommodation would be alright as long as they are built with a concept of sustainability using local materials and architect.

Gisovu Ecolodge Site (Photos by Munanura Ian)

4.5 Semi-Permanent camping sites

Semi-permanent camping is one whereby tents are placed on a raised wooden deck and then replaced every four-five years. Such camping were planned for two sites in the Nyungwe ecotourism plan:

- **Karamba:** The camp can be developed at a former market place for minerals at Karamba. This site has relatively been disturbed and currently used by solders. It commands magnificent views of the forest and is near the main asphalted road from Butare to Cyangugu.

- **Uwasenkoko:** The camp can be located at a former road construction camp, which was abandoned several years ago. The site has magnificent views of Uwasenkoko Swamp with the deep green forest as background, as well as grass land vegetation which is ideal for animal viewing.

However, if other types of accommodation are developed around the park, these semi-permanent camps should be limited or even avoided so as to limit negative impacts to the park. Currently the tourism policy is focusing on up-market tourists and if this is still maintained, this type of accommodation would not be ideal for this market.

Karamba Site (Photo by Gakwerere Rodgers)

Appendix 1: Gisakura Ecolodge Technical Analysis

Research and Analysis:

Before creating conceptual plans for Gisakura Ecolodge, the planning and design team carried out research on indigenous architecture and planning. We visited local villages to understand layout, relationships of various structures, use of materials, etc. This was a very valuable exercise as it helped to better understand the availability of materials and local skills, the orientation of the village and individual buildings.

Planning and design philosophy:

The final conceptual master plan for Gisakura Ecolodge was created through a multi-stakeholder 2-.days workshop. The plan was prepared by all present at the workshop and reflects the endorsements of local people.

Through carefully designed, minimal landscape plantings, the built structure of the Gisakura Ecolodge can blend in with and appear as an extension of the natural environment. The new buildings will be in visual harmony with their surroundings and will not violate or intrude upon the physical landscape as a foreign structure. This also enhances visitor experience and satisfaction. The principles of form, landscaping, and colour have been given particular attention in addressing such issues of physical context. The ecolodge will be sustainably designed and engineered and will be built out of local materials. Local people will help build the lodge and guests at the ecolodge will be provided with unique interpretive experiences.

Programme

The programme for the ecolodge is:

- Entry gate and Guard House
- Car and van Park
- Entry porch, Reception, Gift Shop and Admin Office
- Dining and Lounge (with fireplace)
- Forest View tower
- Kitchen, Stores and service area
- 7 nos. tea villas
- 3 nos. forest villas
- 3 nos. luxury forest villas
- 1 no. presidential suite
- Honeymoon tree house
- Wellness Centre

- Meditation and Massage Gazebos
- Nature Activity Centre
- Library/ Nature Video Room
- Amphitheatre and Performance Deck
- Back-of House (laundry, linen, waste sorting, Offices, Maintenance area
- Gift shop and local crafts exhibit area.
- Organic vegetable garden, orchid garden, greenhouse
- Trails

Approach to Infrastructure

The ecolodges' infrastructure will be as follows:

Energy – A solar farm will be located adjacent to the Lounge and facing the southern sun. This will provide all the electricity needs of the ecolodge. A stand-by generator will be housed in an insulated building that would reduce the constant noise. This building has been located in the back-of-house and far away from the guest villas. All light fittings will be low-impact and all landscape lighting will be fitted with motion sensors and will point downwards to avoid light pollution of the night sky.

Water – All buildings will have rain water gutters that will catch the water and deposit in tanks where the water will be stored for watering the gardens or for emergency situations like fire. All fittings will be low-flow fittings. Water from the sinks and showers will be recycled and used for irrigation.
Waste – All rooms and public areas will have two-three baskets for waste sorting. All waste for the ecolodge will then be further sorted in the back-of-house building and packaged to be taken to Butare. Kitchen waste and fallen leaves will be composted and used in fertilizing the garden.

Sewage –The sewage treatment must avoid any leakage into the forest. Dry composting toilets would help reduce the water use, and at the same time limit any kind of groundwater pollution. Low flush toilets are also an option.

Materials – All the main materials for the ecolodge will be environmentally friendly. All efforts will be made to use timber from sustainable sources.

Construction – Sustainable construction principles will be adhered to during the construction of the Gisakura Ecolodge. All existing trees will be fenced to avoid damage, no used oil from machinery will end-up in the groundwater, etc.

Tourist Attractions

Guests at the Ecolodge would have the following activities and attractions to choose from: bird watching; Kamiranzovu Swamp Walk; Nature Trails; Cyamudongo Chimpanzee Tracking; Nyungwe Wildlife Viewing; Scenic Viewing; Gisakura Colobus viewing, Gisakura Tea Factory and Waterfalls Trail.

Stakeholders at the workshop identified a number of associated activities that local people could engage in to benefit from the proposed Gisakura ecolodge:

- ***Traditional cultural performances****,* including music, intore dance, drama, storytelling. These would not only provide entertainment for visitors, but would also provide a mechanism for educating the hosts and enriching their cultural heritage;
- ***Selling crafts*** through a formal craft centre or gallery;
- ***Selling food and drinks***, again from local produce;
- ***Guided walks of Gisakura village****,* with community trails developed to provide a range of experiences that could include traditional food and drink and opportunities to interact with local people.

People within the district could benefit from both skilled and unskilled employment, training opportunities, and through the sales of materials, products and services. Stakeholders recognised that the revenue from ecotourism would improve household incomes and lead to improvements in the standards of living. Participants also recognised that infrastructural improvements that would improve access for ecotourism would also benefit residents (e.g. roads, sewerage).

Costs for Construction

Function	**Area / m^2**	**Cost/unit**	**Total Cost/$**
Entry gate and guard house	21	600	12, 600
Entry Porch, Reception, Admin Office and Gift Shop	389	1000	389,000
Dining, Bar, Lounge, View Tower, Kitchen, Stores	2051	1200	2,461,200
Back of House	320	600	192,000
Tea and Forest Villas (10)	700	1000	700,000
Luxury Villas (3)	300	1200	360,000
Presidential Suite	120	1300	156,000
Honeymoon Tree House	100	1200	120,000
Library, Wellness Centre, Nature Activity Centre	740	800	592,000
Covered Walkways	114	500	57,000
Parking	575	50	28,750
Amphitheatre	750	100	75,000
Paved Road	3780	50	189,000
Pedestrian Paths	4000	30	120,000
Landscaping	15000	10	150,000
Contingencies 5%			28,000
		TOTAL	**5,630,550**

Appendix 2: Ecolodge Internationally Recognised Standards

As Hawkins et al (1995) suggest, an ecolodge facility should be identified with six features as described below:

Location and Resource Protection: Protecting the ecolodge operational environment is critical to its successful performance. Such protection rests ultimately in the hands of government officials, and will determine long-term investment security, tourist appreciation, and destination image. There are several options for protection. These include nature reserves, or pockets of land on the fringes of national parks. Within these natural environments, what is important for an ecolodges' general atmosphere is the sense of "isolation" and "wilderness", and of being away from the impact of civilization.·

Natural and Cultural Attractions: The key to the success of an ecolodge is an environment of outstanding natural beauty. Cultural attractions, however, are also important. Incorporating local cultural resources in personnel, activity interpretation programs, and in the design and decoration of an ecolodge provides it with an authentic local flavour.

Facilities: An ecolodge is recognized by distinct design features that are intended primarily to blend in with the natural environment. Sustainable site design requires holistic, ecologically based strategies to create projects that do not alter existing site systems --such as plant and animal communities, soils and hydrology -- but instead restore these systems if required. Aesthetically, the ecolodge should be integrated with the natural surroundings, and should incorporate cultural characteristics, whenever appropriate.

Capacity: A survey of existing ecolodges worldwide reveals that, typically, the capacity of an ecolodge is between 25 and 100 guests. The key to deciding the optimum for any given ecolodge, however, lies in the environmental impact assessment undertaken for each site, as well as the natural setting in which the site exists and type of atmosphere that the investor wishes to create for the ecolodge and its clients.

Activities: These are usually based on sensory experience with the natural and cultural resources of the area to enhance the visitor's appreciation of the resources and lead to greater support for their preservation. Examples include trail hiking, nature interpretation, bird watching, river trips, desert excursions, mountain biking, and horse and camel riding. Facility-based activities, such as swimming pools and tennis courts, are rarely available. The "nature" experience that ecotourists gain is a combination of both intellectual and physical challenges that together produce a dynamic and unforgettable experience.

General Atmosphere: Ecolodges are characterized by their friendly, relaxed, flexible and educational environment. The design of an ecolodge and the

activities provided within the facility encourage close interaction with the natural environment. This gives the visitor a feeling of being somewhere special, and imparts a "sense of place" and a "sense of belonging". However, there are no blueprints for success. Each ecolodge must enjoy an atmosphere that is appropriate to the site’s specific setting. It is this atmosphere that is a key ingredient in distinguishing ecolodges from traditional lodges or tourist facilities. Although both traditional lodges and tourist facilities and ecolodges need to be marketed and seek out profit maximization, they are different in several respects. The major distinction between them is that in a traditional tourist facility, the main attractions, facilities and activities are artificial in character. In an ecolodge, on the other hand, the main attractions and activities are directly related to the surrounding environment. Table 1 summarizes the similarities and differences between traditional tourist facilities and ecolodges by category.

REFERENCES

Ceballos-Lascurain, H. (2001) *Integrating Biodiversity into Tourism sector: Best practices. Report submitted to ENEP/UNDP/GEF/BPSP,* unpublished.

Eagles, P.F.J., McCool, S.F. and Haynes C.D.A. (2002). *Sustainable Tourism in Protected Areas: Guidelines for Planning and Management.* IUCN Gland, Cambridge.

Hawkins, D.E., Wood, E. and Bittman, (1995*) The Ecolodge Sourcebook for Planners and Developers.* The Ecotourism Society, Vermont.

International Finance Corporation (2004), *ECOLODGES: exploring opportunities for sustainable business,* International Finance Corporation, World Bank Group, Washington DC.

Lubbe, B (2003) *Tourism Management in Southern Africa.* Maskew Miller Longman, Cape Town.

Mehta, H, (2000) *Best Practices in ecolodge planning, design and guidelines,* Ecolodge Forum Presentation, Cairo, Egypt, Unpublished.

OntheFrontier (2003a) *Rwanda Tourism Strategy and Action Priorities:* Rwanda Competitiveness and Innovation Programme, OntheFrontier Group, Kigali, unpublished.

ORTPN (2004) *Ecotourism Development Plan for Nyungwe Forest National Park,* Rwandan Office of Tourism and National Parks, Kigali, Unpublished.

Plumptre, A.J., Masozera, M., Fashing, P., McNeilage, A., Ewango, C., Kaplin, B., Liengola, I (2002) *Biodiversity Survey of Nyungwe Forest Reserve in SW Rwanda.* WCS working paper, No 18.

World Tourism Organisation. (1998). *Guide for local Authorities on developing sustainable tourism.* World Tourism Organisation, Madrid, Spain.